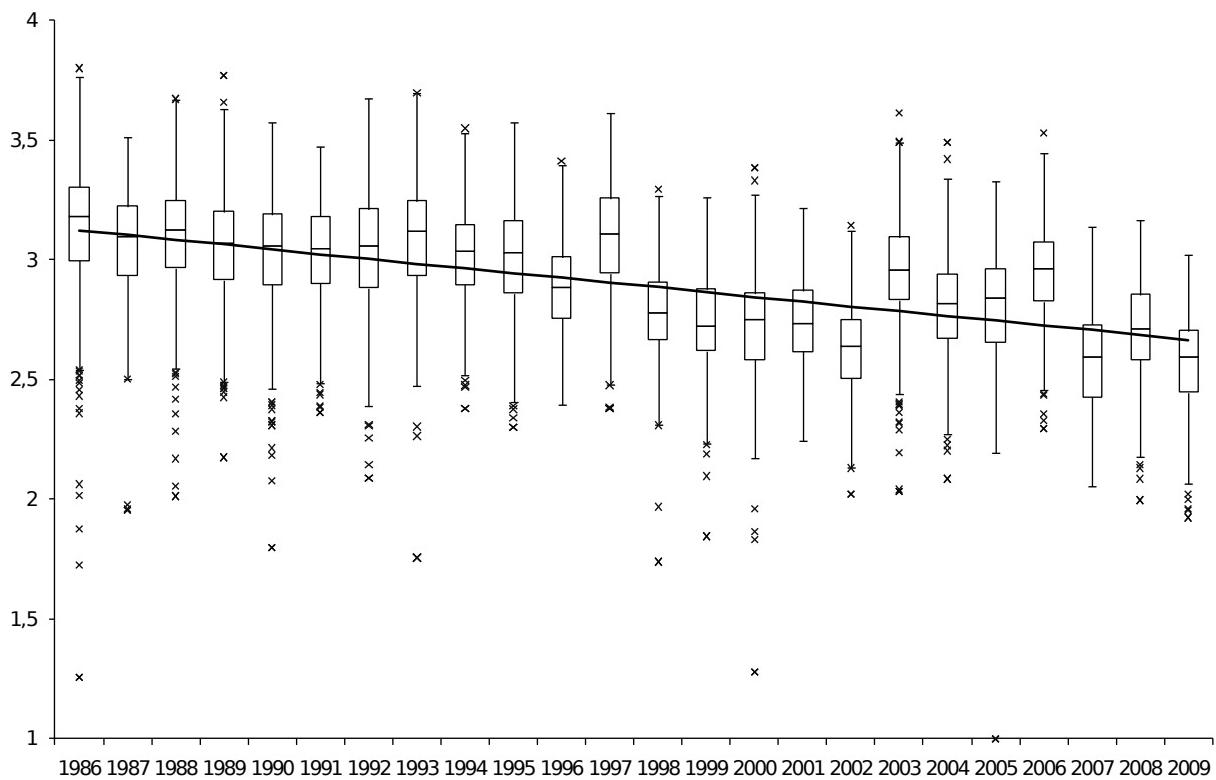


## **RESULTS FROM 24 YEARS OF MONITORING OF $^{137}\text{Cs}$ IN MOOSE (*Alces alces*) IN A SWEDISH AREA IMPACTED BY THE CHERNOBYL ACCIDENT**

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Swedish hunters and the Swedish Radiation Safety Authority (SSM) have since 1986 jointly maintained a monitoring program regarding  $^{137}\text{Cs}$  in moose (*Alces alces*) around Gävle in central Sweden. The monitoring program involves around 90 local hunting teams which together hunt over an area of approximately 2000 km<sup>2</sup>. The deposition of  $^{137}\text{Cs}$  from the Chernobyl accident varied within this area between 40 and >120 kBq/m<sup>2</sup>. During the years 1986-2009 most moose that have been shot in the area also have been sampled. Between 286 and 914 moose per year, and totally 11516 moose, have been sampled. The median concentration was highest in 1986 at 1520 Bq/kg f.w. (min-max: 20-6300) in adult moose and 1920 Bq/kg (80-6600) in moose calves. For the most recent years (2007-2009) the median concentration in adult moose was 420 Bq/kg (80-1500) and in calves 500 Bq/kg (40-3600). The yearly median concentration in calves is generally higher, in average 20% higher, compared to adults. The effective ecological half life in moose meat over the entire period has been 15 years. However, the decrease in  $^{137}\text{Cs}$  concentrations has not been uniform. The yearly variation has been considerable and the median value in some cases differs by a factor 2 between consecutive years despite the relatively large number of samples. Looking only at the second half of the period (1998-2009) the effective ecological half life has been 38 years, i.e. longer, although not statistically significantly so, than the physical half life of 30 years.



Log values of  $^{137}\text{Cs}$  activity concentration in moose muscle. Boxplot represent first and third quartile where the median is marked with a line. Whiskers represent first quartile minus  $1.5 \times$  interquartile range and third quartile plus  $1.5 \times$  interquartile range respectively, or max or min values if these are closer to the box. Crosses represent all samples out of the range of the whiskers. The regression line shown is calculated on basis on all individual log values.